

STATEMENT OF BASIS

To: Reviewers

Through: Dan Olson, Administrator
Michael Stoll, Operating Permit Program Manager

From: Jamie O'Dell, Environmental Analyst

Subject: Draft Operating Permit 3-0-136-2 for Wyoming Refining Company, Newcastle Refinery

Date: November 30, 2005

Attached for your review is a draft Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 6, Section 3 operating permit modification for Wyoming Refining Company's, Newcastle Refinery. The operating permit is being modified to incorporate requirements, including conditions set in WAQSR Chapter 6, Section 2 permits MD-1030 and MD-1132 that have become applicable since the issuance of operating permit 30-136-1 on May 11, 2004.

The Division received a request for an expedited revision of operating permit 30-136-1 from Wyoming Refining Company on June 15, 2005. In addition to the requested modifications to the operating permit additional facility specific conditions are added to this permit for performance testing and the ambient SO₂ monitoring requirements, and all subsequent conditions and condition references have been renumbered throughout the permit.

On January 28, 2004, the Air Quality Division, Department of Environmental Quality of the State of Wyoming adopted Chapter 14, Emission Trading Program Regulations, to the Wyoming Air Quality Standards and Regulations. Section 3 of this regulation is applicable to any stationary source with actual emissions of 100 tons per year or more of sulfur dioxide in calendar year 2000 or any subsequent year. Sources subject to Section 3 are required to submit an annual sulfur dioxide emissions inventory under the guidelines of Section 3 by April 15 of each calendar year. They remain subject to the emission milestone inventory requirements until 2018 or the first control period under the Western Backstop Sulfur Dioxide Trading Program established in Section 2 of Chapter 14. This facility is subject to these requirements.

Requested changes permitted for the facility under permit **MD-1030**, issued July 21, 2004, not previously incorporated into the operating permit include: recognition of unit H-02 as the FCC Feed heater; and the option to burn fuel oil in the Crude Heater (H-03), provided that a performance test approved by the Division has been done, and the fuel oil to gas ratio fired is monitored and recorded. The permit describes how compliance with the crude charging rate is to be determined; increases the particulate emission rate for the FCC unit stack (stack S-21); and decreases the lb/MMBtu NO_x limit for NHT Heater (H-16). Language from MD-1030 that allows for data substitution for the continuous monitoring systems is incorporated into this modification. All construction, startup, and testing notification and reporting requirements from MD-1030 have been completed.

AP-1972, issued May 6, 2004, allows the use of an electric driven compressor to deliver additional hydrogen during the testing of the new catalyst in the HDS unit. Overall facility emissions did not change as a result of this waiver. According to an August 10, 2004 letter from Wyoming Refining Company the compressor was put into service on August 9, 2004. A November 24, 2004 letter stated that the compressor has been disconnected as of November 22, 2004. Therefore there are no remaining applicable conditions from this permit.

AP-2113, issued October 11, 2004, allows steam injection into the fire box of the Reformer Reheater #2 (H-13) to lower NO_x emissions. Emission limits from the unit do not change. This waiver requires notification of startup, performance tests for NO_x and CO emissions from the unit, and records of steam flow rate. The performance testing was done without steam injection on October 26, 2004 and with steam on October 27 & 28, 2004. All tests showed compliance with the applicable emission limits. A meter to track steam addition has been installed and is operational, however thus far steam injection has not been utilized. The only applicable requirement from this waiver is recordkeeping.

MD-1132, issued March 17, 2005, allows modification to the HDS unit; a change of the Reformer catalyst; the installation of a back-up fuel gas H₂S removal unit in order to produce low sulfur diesel fuel; and to replace the firebox, steam tubes, steam drums, mud drums and burners in the CO furnace. This permit reduced the allowable manufacturer's guaranteed lb/MMBtu emission rate from the burners in the CO Furnace (unit H-20, part of stack S-21). The permit increased the SO₂ emission limits from the HDS Heater (H-14), decreased the NO_x emission limits from the HDS Heater and the FCC unit stack (stack S-21), and decreased the CO emission limits from the FCC unit stack. This permit requires initial performance testing of the HDS Heater and the FCC common stack. It requires the HDS Heater and the CO Furnace to comply with 40 CFR Part 60, Subpart J, including the H₂S fuel gas concentration limit. This permit also requires all components associated with this change to comply with 40 CFR Part 60, Subpart GGG, and requires Tank 13 to comply with 40 CFR Part 60 Subpart QQQ. An ambient SO₂ monitoring program operated in accordance with 40 CFR Part 58 and approved by the Division is required to be installed by October 1, 2005.

Changes in Permit 3-0-136-2

The following information and conditions have been changed in operating permit 3-0-136-2 to add the additional requirements from WAQSR Chapter 6, Section 2 permits and waivers, and to make the permit consistent with other Chapter 6, Section 3 operating permits being issued by the Division at this time. Operating permit revisions include:

- The Table of Contents is updated to reflect the additional conditions and subsequent new page numbering throughout the permit.
- The Source Emission Points table is updated to add the applicable Ch 6, Sec 2 permit references and correct the source description for unit H-02. The source description for unit H-02 is corrected throughout the permit.
- The Total Facility Estimated Emissions table is updated to reflect the incorporated emission limit changes and revised estimates from the other sources at the facility.

- Condition F3, Table I for particulate matter emissions is modified to include the revised lb/hr limit for the FCC unit stack (stack S-21).
- Condition F4, NO_x Emissions is modified to revise the lb/MMBtu guaranteed emission limit for the CO Furnace burners. Table II for NO_x emissions is modified to include the revised limits for units H-14, H-16 and stack S-21.
- Condition F5, SO₂ Emissions is modified to remove the requirement to comply with the 0.1 grains/dscf hydrogen sulfide fuel content limit from this condition. The H₂S fuel content limit is actually from the requirements of 40 CFR Part 60, Subpart J, and is stated in the P60-J conditions of the permit. Table III for SO₂ emissions is modified to revise the lb/hr and TPY limits for unit H-14.
- Condition F6, Table IV for CO emissions is modified to revise the lb/hr and TPY limits for the FCC unit stack (stack S-21).
- Condition F7, Operational Limitations is renamed to reflect what the requirements of the condition actually are, and is modified to add paragraph (b) to indicate that fuel oil may be burned in unit H-03.
- Condition F10, FCC Emissions and Crude Heater Fuel Oil Testing, is renamed to reflect what the requirements of the condition actually are, and is modified to include the fuel oil ratio recordkeeping requirements for performance testing.
- Condition F11, Initial Performance Testing, a new condition is added to the permit to include the initial performance testing required by permit MD-1132 for unit H-14 and the FCC stack, S-21. Associated recordkeeping (F21) and reporting (F36) conditions are also added as new conditions to this permit.
- Condition F15, NO_x, SO₂ and CO FCC Emissions Monitoring is modified to include language describing how compliance with the annual emission limits is to be determined including data substitution for the continuous monitoring systems.
- Condition F16, Fuel Monitoring is modified to add monitoring of the fuel oil to gas ratio burned in the Crude Heater (H-03). It is also changed to require monitoring of the heat content of the fuel oil, which is necessary to calculate NO_x emissions as described in condition F17(a).
- Condition F17, NO_x and SO₂ Heater and Boiler Emissions Monitoring is modified to include the language clarifying how annual emissions shall be determined; require monitoring of steam injection into the Reformer Reheater #2 (H-13); clarify which heaters and boilers are actually subject to CAM; and to include the data substitution language for the continuous monitors on fuel for the boilers and heaters.
- Condition F18, Process Rate and Gasoline Loading Rack NO_x Monitoring is modified to include language clarifying how compliance with the barrels per day limit shall be determined for the crude throughput rate. The associated recordkeeping (F25) condition is also modified in this permit.
- Condition F20, Ambient SO₂ and Meteorological Monitoring, a new condition is added to the permit to include the required ambient and SO₂ monitoring station. Associated recordkeeping (F27) and reporting (F35) conditions are also added as new conditions to this permit.
- Condition F22, Maintenance Records, is modified to include the record for the maintenance required for fuel burning equipment under condition F17(a). The associated reporting

requirement (F29) is also modified to include this maintenance in the semiannual reporting requirement.

- Condition F23, Continuous Emissions and Fuel Monitoring Records, is modified to include records of the fuel usage measurements required under condition F16 of this permit. Paragraph (d) is added to this condition to record the calculation and the basis of the calculations for NO_x and SO₂ emissions, and (e) to record steam flow rate into unit H-13, as specified in waiver AP-2113.
- Condition F26, VOC Equipment Leaks Monitoring Records, is modified to correct a typographical error.
- Condition F28, Testing and Monitoring Reports, is modified to include the Crude Heater fuel oil ratio in the semiannual reports.
- Condition F32, VOC Equipment Leaks Monitoring Reports, is modified to correct a typographical error.
- Condition F33, Excess Emission and Monitoring System Performance Reports, is modified to clarify how annual SO₂ and NO_x excess emissions are defined; to include the revised NO_x and CO emission limits; and to include recent revisions to the CAM reporting language. Changes are also made to include the CO Furnace in the Subpart J excess emission reporting and clarify that it is for excess emissions of SO₂.
- Condition F34, Reporting of Excess Emissions and Deviations from Permit Requirements, paragraph (b) is updated to include language used in permits currently being issued by the Division.
- Condition F38, Sulfur Dioxide Emissions Inventory Requirements, from WAQSR Chapter 14, Emission Trading Program Regulations, are added as a new condition.
- The P60-J conditions of this permit are modified to include the CO furnace (unit H-20) as an affected source.
- The P60-QQQ conditions of this permit are modified to include Tank 13 as an affected source.
- Condition CAM-5, CO Furnace Implementation Plan and Schedule, is modified to indicate that the required CEM has been installed and is operational.
- Condition C1, Compliance Certification, is modified to reflect the new condition numbering and to add three paragraphs to include additional compliance assessment methods.
- Condition G19, Open Burning Restrictions, is updated to reflect requirements in the recently revised WAQSR Chapter 10.
- The Summary of Source Emission Limits and Requirements tables, are modified to reflect the additional requirements, the modified emission limits and operating requirements, the updated condition numbering throughout the permit, and to clarify the unit specific requirements for the heaters and boilers.
- The abbreviations table is also updated.